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ABSTRACT

Changes in the market conditions for fruit and vegetables have induced Dutch co-operative auctions to restructure their sales and marketing activities. Nine auctions merged into VTN and established the marketing organisation The Greenery International BV. VTN/The Greenery have encountered many problems in their first years of operation. Part of these problems can be explained by the lack of organisational coherence in the new co-operative enterprise. VTN/The Greenery is analysed from the perspective of a system of organisational attributes. While the old system is taken apart, a new, coherent system has not been fully established. Further restructuring may have to take place before the new system of attributes will be efficient.

Keywords: Management, Co-operatives, Governance Structure, System Analysis

INTRODUCTION

The European market for fruit and vegetables has undergone significant changes in the last decade (OECD, 1997). Competition has increased, consumers have become more demanding, technology has made transport and storage more efficient and the retail business has become much more concentrated. In 1995, the supermarket share of fruit and vegetable retailing is more than 50% in France and the UK, more than 70% in Germany and more than 80% in the Scandinavian countries (OECD, 1997). In the Netherlands the share of the fruit and vegetable market serviced by supermarkets increased from 50% in 1990 to 64% in 1998 (Jaarboek Detailhandel). Other reasons for increasing competition in the fruit and vegetable markets is globalisation of the economy and the concomitant economies of scale in logistics and marketing. In order to improve their competitiveness vis-à-vis wholesalers and retailers, producers try to increase efficiency in the production and distribution chain and enhance product and marketing innovation.

For more than a century, the co-operative auction has been the dominant marketing mechanism for Dutch fruit and vegetables. With the changes in the market for horticultural products, questions were raised about the functionality and efficiency of the auction system. The auction is basically an organised market place, where sellers (growers) and buyers (wholesalers and retailers) meet, and where prices are determined by the auction clock. The auction is owned by growers (collectively), and the main goal is to get the highest price possible for the produce, against the lowest cost for logistic and administrative handling. The co-operative auction has proved to be an efficient marketing mechanism in an industry characterised by many suppliers and many buyers, growers as price takers, standardised products, uniform packaging, and large transparency.

Changes in market conditions led to problems in the marketing of Dutch fruit and vegetables, like structurally low prices, dissatisfaction among large retailers, insufficient orientation towards the qualitative consumer demands, and inefficiencies in logistics. To fight these challenges, in 1996 nine co-operative auctions merged into VTN (*VoedingsTuinbouw Nederland*), and combined their operations into a new company, The Greenery International BV. VTN is 100% shareholder of The Greenery.

This paper presents an analysis of the first four years of operation of VTN/The Greenery, applying economic organisation theory. The paper is organised as follows. Section 2 presents the (organisational) challenges encountered by VTN/The Greenery. In Section 3 the notion of a system of attributes is introduced. In section 4 several organisational attributes are evaluated in the light of economic organisation theory: governance structure, decision making structure, information transfer structure, and incentive structure. Section 5 presents conclusions on the efficiency of the current system of organisational attributes for VTN/The Greenery.

THE CHALLENGES FOR VTN/THE GREENERY

When VTN/The Greenery was established in 1996, the business plan stated five goals: reduce costs, increase scale of operation, add more value, enhance market orientation, and improve co-ordination in the production and distribution chain (VTN, 1996). While these aims seem straightforward, the implementation turned out to be rather difficult. VTN/The Greenery experienced challenges in its relationship with growers, in its relationship with buyers, in its financial situation, in the operation of the price setting mechanism, and in implementing new marketing programmes.

Growers-management relationship

The reorganisation and merger of the auctions had tremendous organisational consequences: several locations were closed, logistic structures and practices were redesigned, employees were given different tasks, and new (and inexperienced) employees were hired. Growers were confronted with changes in delivery conditions, as well as with a different way of communicating with the personnel of the marketing organisation. Communication between growers and the management used to be direct, and growers had substantial influence on auction policies. After the merger, both the geographical and the psychological distance between growers and management had increased. Psychological distance was created by arrogant managers. In its early years, the management of The Greenery – most of them recruited from outside the agrifood sector – used a very top-down way of communicating with growers. Growers were told that the marketing of their products was now the sole responsibility of The Greenery and that they were mere suppliers to The Greenery. Discontent among growers led to a sharp reduction in the number of members. In 1996 VTN/The Greenery started with approximately 10.000 members. This number had diminished to 7300 at the end of 1998 (AgD, 5/6/99). The effect of growers giving up their VTN-membership was a loss of turnover for The Greenery.

Decision-making structure and process

The founders of VTN/The Greenery introduced a clear separation between decision making in the co-operative society (VTN) and in the commercial enterprise (The Greenery). They were aware of the disadvantages of decision making in co-operatives (time consuming, and lack of expertise among board members). Substantial opposition from growers was expected, which had to be channelled into VTN meetings instead of interfering with day to day management of The Greenery. However, the formal separation between VTN and The Greenery made it very difficult for growers to (re)direct management decisions, and many growers left the co-operative, disappointed about their lack of influence. In order to stop this process, action was eventually taken by the VTN

board of directors, and the CEO of The Greenery had to resign. Other members of the board of managers had already left, or were soon to leave. Within two and half years of its existence, all six members of the management board of The Greenery were replaced. Also the chairman and vice-chairman of the VTN board of directors resigned. VTN drew two major lessons from this experience. First, the newly appointed CEO has experience in the agricultural sector. Second, a personal link was established between the board of directors of VTN and the supervisory board of The Greenery. Five members of the board of VTN (including the chairman) are now also members of the supervisory board of The Greenery.

Relationship with buyers

The old auction followed a policy of attracting as many buyers as possible. The larger the number of buyers present at the auction, the higher the price would be. Auctions were competing each other in attracting buyers, for instance by offering attractive conditions for renting office and storage space at the auction premises. The Greenery followed a different strategy. For efficiency reasons it concentrated its activities at a few locations, where there was no room for all the buyers. As The Greenery was shifting its sales process from the auction clock to contract mediation, it preferred to deal with a smaller number of buyers. The Greenery made a distinction between preferred buyers and others, the latter being faced with adverse sales or logistic conditions. Wholesalers not belonging to the group of preferred buyers looked for other ways to obtain their merchandise. They contracted directly with growers and growers' associations. As a result, growers had more options to sell their produce outside the auction, which made the decision easier to quit VTN membership.

Ownership and financing

In a co-operative the members are the owners of the firm, and therefore provide equity capital. If non-members supply equity capital, a conflict of interests would occur between members/users of the co-operative and other owners who want the highest return on their investment. The common method of increasing equity capital in a co-operative is retained earnings. As the Greenery has ambitious marketing plans, additional equity capital is required. By increasing turnover and lowering costs, it was expected that additional earnings could be retained without too much burden for the growers. However, the reorganisation – originally calculated at 260 million guilders – turned out to be more expensive, and turnover decreased, due to lower prices for horticultural produce and growers leaving the co-operative.

Still, the management of The Greenery wanted to gain control over the marketing channel, by establishing direct contact with major retailers. For implementing this strategy, it needed a position in wholesaling. In 1998 The Greenery bought two large wholesale companies: Van Dijk Delft Group, and the Fresh Produce Division of Perkins Food Plc. These wholesalers supply major retailers in Germany and the UK. The 684 million guilder acquisition was wholly financed through debt capital. To improve its solvability, The Greenery is desperately looking for additional equity capital. As VTN does not want to invite outside funding because that would mean a loss of control rights, the money has to come from VTN members. However, so far they have not been eager to supply the additional funds. Growers need the money in their own farms, and they may consider investment in The Greenery too high a risk. VTN/The Greenery is now considering an obligatory participation.

Price setting

Traditionally, a co-operative auction has only one mechanism for price setting: the auction clock. Invented in 1903, the auction clock has proved to be a very efficient price mechanism. In recent years new price mechanisms were introduced, like contract mediation. Greenery personnel negotiate with major clients about prices and quantities. Even more recently The Greenery has started a third price mechanism: unilaterally setting a price and inviting buyers to make a bid for a certain quantity. Contract mediation and unilateral price setting require growers to have trust in Greenery negotiators. Under the auction clock price setting was very transparent: a grower could see which price was the best possible in the market of that day. However, under the new price setting system Greenery negotiators have to bargain with buyers. Growers were not convinced that they received the best price possible, because the negotiators were inexperienced (the auction had never done such negotiation before), because price setting was secretive, and because the prices obtained were actually lower than what could be obtained at other auctions (while higher prices were expected).

Marketing and promotion

The old co-operative auctions did not have explicit marketing policies. Promotions, commercials and other forms of advertising were carried out by all fruit and vegetable auctions together (by CBT and the Product Board for Horticulture). Most of Dutch fruit and vegetables were sold under the “Holland” label, which used to have an image of quality until the early 1990s when Dutch vegetables were discredited in Germany, the main export market. The Greenery has taken a more offensive strategy in marketing, for instance by establishing *the greenery* as a brand name. All products from The Greenery will carry this logo, that stands for quality and expertise (Annual Report 1998). However, selling under *the greenery* label poses several challenges. Will *the greenery* become a premium brand that consumers ask for in the shop, or will it only provide consumers an image of quality without bringing the customer loyalty that normally goes with a strong brand name? Establishing a premium brand is a very high and risky investment, and it may also be quite difficult for products that can vary in (seasonal) availability, in price, and in quality. An additional challenge comes from the growers’ associations that operate within VTN/The Greenery, but have introduced their own brand names. To prevent competition between brands, The Greenery has developed a marketing policy of “unity in diversity” that combines attention for the special image of the growers’ association with the general image of The Greenery (Annual Report 1998).

Innovation and differentiation

Part of The Greenery strategy is to develop and market new products. Product innovation used to be the domain of the plant breeder together with the growers. Improvements in plant breeding and agronomic requirements by growers were the main factors influencing the development and uptake of new plant varieties. Nowadays, product development is much more focussed on consumer demands. These new innovation goals require changes in the organisation of product development, like closer collaboration among seed companies, growers and marketing organisations. The Greenery is promoting this collaboration in the production and distribution chain. Innovation activities by The Greenery raise questions about the distribution of risk and revenues. Because The Greenery is marketing a broad range of products, it may take different decisions than individual growers or growers’ associations would. As a result, difficult bargaining may

occur over which new products should be introduced, who should carry most of the risk and how extra revenues should be divided.

The rise of growers' associations

One of the most interesting developments in Dutch horticulture in recent years is the rapid growth in the number of growers' associations. Since the early 1990s some sixty growers' associations for fruit and vegetables have been established. Many of them operate under the umbrella of co-operative marketing organisations like The Greenery. Others have obtained an independent position, and sell their produce to wholesalers or even to retailers directly. In 1999, VTN/The Greenery had 13 associations of tomato growers (Greentime 25/2/99) and 9 associations of pepper growers (Greentime, 29/4/99). Growers' associations and The Greenery together decide on the marketing strategy for the products of the association's members. Some associations have their own sorting and packaging stations, some also have their own brand name. Members of these associations continue to have the obligation to sell all their produce through The Greenery. The rise of the growers' associations has made (decision making on) the marketing strategy of The Greenery more difficult.

COMPLEMENTARITIES IN ORGANISATIONAL DESIGN

Each organisation can be viewed as a system of attributes which have to be co-ordinated in order to reach good performance (Milgrom and Roberts, 1990a). Attributes can be activities as well as organisational characteristics. Each attribute of an organisation can have different values. The choice of these values has to be coordinated in order to establish the complementarities between the various elements of organisational design. Complementarity means that carrying out one activity affects the marginal revenue of another activity. In other words, the interaction among activities and/or organisational elements generates synergy benefits.

The system of attributes view entails that changing the value of one particular attribute of an efficient organisation without changing the values of other attributes will often lead to a serious loss of functionality of the organisation as a whole. When a firm is faced with a major change in its environment, the existing combination of attribute values may no longer be efficient, and a new combination may be needed. This shift, however, can be difficult, as attributes have to be changed simultaneously and co-ordinately. Moreover, the shift cannot last too long, as attribute values of the old and new system often do not match. The empirical implication of the system of attributes view is that only a few combinations of attributes values are equilibrium outcomes. Observing an organisation with attribute values which are predicted as a non-equilibrium outcome can be interpreted in two ways. First, the system of attributes view may not be relevant. Second, the prevailing organisation may not be efficient in the system of attributes view, i.e. some attribute values have to be changed in order to establish an efficient, coherent organisational design. We will take the second position in this article.

Several examples of analysing organisations from a system of attributes perspective can be found in the literature, often focussing on just a selection of organisational attributes. Milgrom and Roberts (1988) have compared production and distribution strategies of manufacturing companies. They predict that firms are organised either to produce for inventory or to produce to order. Firms that produce-to-stock typically manufacture uniform products in large numbers and subsequently sell from inventory. The

production-to-stock mode is only profitable for a large size market, with low prices, low production costs, high costs of market research and low uncertainty of demand. The production-to-order system typically is efficient in a situation with high prices, high production costs, small market, low costs of market research and high uncertainty of demand. Other examples of theoretical and empirical literature on complementarities in organisational design are Aoki (1990), who compares decision making attributes in Japanese and American firms; Holstrom and Milgrom (1991, 1994), who analyse combinations of incentive instruments for the motivation of employees; Baron and Kreps (1999), analysing consistent human resource practices; and Williamson (1991), who compares different combinations of attributes of governance structure.

A marketing co-operative can also be analysed as a system of attributes. Hendrikse and Veerman (1996) discuss the main attributes and their values in a farmer-owned co-operative by comparing it with an investor-owned-firm (IOF). A typical marketing co-operative is owned and financed by the members/farmers, has democratic decision making, has a narrow product assortment, and has no individual and tradable ownership titles. In a particular market and industry structure, these attributes form an efficient system. However, as Hendrikse and Veerman (1995) have shown, if market conditions change and riskful investments are needed, the co-operative may no longer be an efficient organisational form. A shift to an IOF may be needed to raise more equity capital. With a shift in ownership other attributes may have to change as well in order to obtain a new efficient system.

VTN/THE GREENERY AS A SYSTEM OF ATTRIBUTES

The organisational challenges of VTN/The Greenery can be analysed from a system of attributes perspective. As many organisational elements have changed with the formation of the new organisation, the key question is whether the resulting organisational design is an efficient combination of attributes. Out of the above survey of challenges the following four attributes seem to be the most relevant to analyse: governance structure, decision making structure, information transfer structure, and incentive structure. For practical reasons we only consider two values for each attribute. Moreover, the presentation of each attribute will be somewhat stylised, to emphasise the effect of different attribute values.

Governance structure

The governance structure of an organisation allocates income rights and decision rights, i.e. it determines who receives income from the use of the organisation's assets and who may decide over these assets. If we take the investor-owned-firm (IOF) as the standard (as is often done in economic organisation theory), a co-operative has a different ownership structure and a different control structure. These differences in attribute values result from the goal of the organisation: an IOF is to give its owners the highest return on investment, while the primary goal of a co-operative is to provide the best service to its members (against the lowest costs). Typical governance attributes are the allocation of income rights and decision rights, the supply of equity capital, the assignment of ownership title, and the owners' control of the management.

Co-operatives have been founded by farmers in order to provide them with particular services, for instance processing and marketing of farm products. A co-operative is a form of partial vertical integration, where farmers own assets in another stage of the production and distribution chain. The explanation for farmer-ownership of the processing

and marketing enterprise can be found in the transaction cost / incomplete contract theory. As contracts are always incomplete – because of the bounded rationality of people – ownership matters for decisions on the use of specific assets (Williamson, 1985). Incompleteness of contracts leads to incomplete incentive alignment and gives room for opportunistic behaviour. This commitment problem is most serious when significant investments in specific assets have to be made. These are assets that generate a higher surplus in a specific contractual relationship. The problem with relationship-specific assets is that much of the value of the investment depends on the behaviour of the other contract party. This opens the possibility of various sorts of *ex post* opportunistic behaviour that endangers the investment. This risk is called the hold-up problem (Klein et al., 1978). By assigning to farmers the ownership of the assets in the processing and marketing stage of the production and distribution chain, the risk of hold up by a processing and marketing firm is eliminated.

Farmer-ownership of an co-operative enterprise has two important characteristics: it is collective and it lies exclusively with the members. The collective ownership means that ownership rights are not assigned to any member individually, but are held by all members together. Most co-operatives do not have tradable property rights. Ill-defined, non-tradable or not well protected property rights lead to inefficient decisions (Milgrom and Roberts, 1992). Cook (1995) distinguishes three investment related efficiency problems: the free rider problem, the horizon problem, the portfolio problem. The free rider problem occurs if not the investor but someone else benefits most from the investment. The horizon problem rises if the investment only pays off in the long run. And the portfolio problem means that individual members cannot adjust the size of their investment in the co-operative to their personal risk preference. As disadvantages of collective ownership weaken the incentive for members to supply additional equity capital, they are most serious when a co-operative enterprise has to make substantial and risky investments.

Having only users as owners of the co-operative enterprise is another problem that presents itself when members are unable or unwilling to provide additional equity capital. If the co-operative invites outside investors, they may want to obtain control rights. This opens the possibility of a conflict of interests between users and investors. If investors do not receive decision rights, they face the risk of being held up by growers. As a result, co-operatives have more difficulty in attracting equity capital than their IOF competitors.

Ownership means having (residual) decision rights and (residual) income rights (Grossman and Hart, 1986). Owning the co-operative enterprise generates income for farmer/members only through using the services provided by the enterprise. As the income generated by their own farms largely depends on the efficiency of the activities by the co-operative enterprise, farmers have a good incentive to engage in decision making on those activities. This explains the role of farmer/members in co-operative decision making. Members, represented by the board of directors, exert direct and intensive control over the management of the co-operative enterprise. All major strategic decisions are taken by the management and the board of directors together. This structure is a solution to the classical agency problem of control of the management by the owners (Jensen and Meckling, 1976). There are two kinds of agency costs: the costs of controlling the managers and the costs of opportunism by the managers in case full control is not possible. According to Hansmann (1996), farmer-owned co-operatives have low agency costs. The typical contractual problems of conflicting interests and asymmetric information are solved by close interaction between the board of directors of the co-operative and the management. However, agency costs may still exist, due to the non-existence of stock market pressure

on management, and to a lack of expertise among the farmers in the board to control large and complex firms (Cook, 1995).

To conclude, the attribute values for the co-operative governance structure are (a) residual income rights with members/users, (b) collective ownership (i.e. no individual ownership titles), (c) intensive owner control of management, (d) residual decision rights with board of directors (representing the membership), and (e) equity capital supplied by members. Typical governance attribute values of an IOF are (a) residual income rights with financiers, (b) individual and tradable ownership titles, (c) control of management by the market, (d) residual decision rights with the management and the supervisory board, and (e) equity capital supplied by investors.

Decision-making structure

In a co-operative, decision making on firm strategy and operation is done at two levels: in the co-operative society and in the enterprise. Decision making at the enterprise level is done by the management, which is then controlled by the board of directors of the co-operative, which is elected by all members together. Sometimes, if major strategic decisions are to be taken, the general assembly convenes for a direct vote on the strategy.

The collective decision making process carries two kinds of costs: (1) the costs related to the decision making process itself, like organising meetings, lobbying, and allowances for board members, and (2) the costs of making inefficient decisions. The latter are decisions that do not optimise benefits for the co-operative as a whole, but only for a limited group of owners. Homogeneity of interests is a major explanation for low decision making costs in co-operatives (Hansmann, 1996). Also, the democratic process of decision making lowers the chance of selecting 'bad' investment projects (Hendrikse, 1998)

However, if the interests of members start diverging, the costs of collective decision making may rise, particularly if such decisions affect the distribution of value among members of the organisation (Søgaard, 1994). Members may try to influence the decision making process to secure their private interests. The efficiency losses resulting from such influence activities have been called influence costs (Milgrom and Roberts, 1990b). The problem of influence costs is more likely to occur in large, diversified co-operatives. Cook (1995) has emphasised the problems in decision making that result from diverting interests in a diversified co-operative. As members do not have the option of selling their 'shares' in the company, they have a strong incentive to defend their private interest in the collective decision making process.

In conclusion, decision making can be democratic (bottom up) or autocratic (top down). In democratic organisations the efficiency of the decision making process decreases when the heterogeneity of the membership increases.

Information transfer structure

There is a (strong) relationship between the structure of an organisation and the type and quantity of information transferred in this organisation. In his study on relationship between formal hierarchical structure of a firm and the type of information that becomes available for decision making, Hammond (1994) has found that different organisational structures produce different kinds of options for consideration by the management. Functionally structured organisation present choices according to functional activities, while product-based structures are biased towards choices between products.

The co-operative auction is a functionally structured organisation, as all products are treated equally. As a major task of the auction is logistics, information on the quantity that will be supplied will improve the efficiency of the organisation. Thus, most of the

information transfer was from growers to the management, and mostly about the quantity of produce. Moreover, the price is the main information being transferred. Growers take decisions on the basis of prices, and auction management has no interference with grower decisions. Strategic decisions about co-operative assets are taken by growers and management together, based on demands from growers expressed directly to the management or via the board of directors. Information lines were short.

Incentive structure

Holstrom and Milgrom (1991, 1994) have argued that firms use a combination of various incentive instruments to motivate their employees, and that the working of one instrument affects the working of other instruments. Within a firm, an employer uses at least three mechanisms for motivating its workers: job restriction, contingent rewards and asset ownership. Job restriction determines the freedom that an employee has in deciding over the allocation of resources (e.g. money and time) over different tasks and activities. Contingent rewards (or incentive contracts) provide the employee with (financial) compensation for his effort. This compensation can be based on output, like in piece rate earnings, or on input, like in hourly payments. The structure of asset ownership determines what assets are owned by the employer and what assets are owned by the employee. The central argument of Holstrom and Milgrom is that each employee has more tasks, and that an equal distribution of effort over various tasks requires an equal allocation of compensation for these efforts. Milgrom and Roberts (1992) have called this the equal compensation principle.

Although the equal compensation principle is usually applied to the employee-employer relationship, it can also be used to analyse the relationship between growers and co-operative marketing organisation. In a co-operative auction, the main incentive for production is the price the grower receives per unit of produce. Decisions about the crop, the quantity and the quality are determined by current and expected prices. If a marketing organisation asks growers to supply specific quantities and qualities, then changes in the reward system may be needed. Introduction of supply contract may require the co-ordinated restructuring of several incentives.

CONCLUSION

Organisational coherence is a prerequisite for the efficient operation of firms. Attributes of the organisation have to be properly aligned in order to benefit from complementarities in the activities of the organisation. When organisations restructure their activities, in response to a change in technology and/or in the environment, the system of attributes may be out of equilibrium. Finding the right attribute values that together generate a new efficient system is a difficult challenge.

In this paper we have studied four attributes: governance structure, decision making structure and process, information transfer and incentive structure. Table 1 presents two opposite values for each attribute. The old auctions that were transformed into VTN/The Greenery formed a system of attributes with the values as presented on the left side of each dichotomy. This has proven to be an efficient system, at least for the market conditions that prevailed until the late 1980s. VTN/The Greenery still has several of these attribute values in place, while on others it has shifted, or is shifting, towards the other extreme. Thus, VTN/The Greenery seems to be a mixture of attribute values from various systems.

For instance, for the attribute governance structure we have seen that the influence of growers on management decisions has diminished, while the management of The Greenery is taking strategic decisions – like investments in wholesale companies and in marketing activities – that directly affects the financial situation of the company and thereby indirectly of its owners. These investments require additional equity capital, normally to be supplied by the members. However, if members are not able or willing to provide this capital, outside financiers may have to be invited, leading to a dilution of growers’ decision rights.

VTN/The Greenery is still in a process of transformation. Some organisational attributes have obtained their final value, while others are still to be changed. While the old system of attributes is being broken down, a new properly aligned system has not been established yet. The concept of ‘system of attributes’ formulates the hypothesis that this state of affairs is inefficient. This paper shows that many of the operational challenges faced by VTN/The Greenery can be traced back to a lack of organisational coherence.

Table 1. Opposing values of organisational attributes

<i>Governance structure</i>	
financers:	users ----- investors
ownership title:	collective ----- individual
control of management:	members/board ----- market
residual income rights:	users/members ----- investors
residual decision rights:	board of directors ----- board of supervisors
<i>Decision making</i>	
structure:	democratic/bottom-up ----- autocratic/top-down
interests:	homogeneous ----- heterogeneous
<i>Information</i>	
structure:	function-based ----- product based
flow:	bottom-up ----- top-down
<i>Incentives</i>	
income:	by using assets ----- by investing in assets
operational decisions:	growers ----- marketing firm
type:	output related ----- input related

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